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(COLEOPTERA, HISTERIDAE, HISTERINAE)

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INTRODUCTION

The cosmopolitan tribe Platysomatini, of the large subfamily Histerinae, contains 374 species [based on an unpublished electronic database developed by one of us (FP) using the last world catalogue of the Histeridae (MAZUR 1997) and regularly updated] divided among 36 genera/subgenera, four of which probably not belonging to the tribe (MAZUR & ÔHARA 2009).

Considering that the majority of the described species (synonyms included) are Indo-Malayan and/or Australasian (cfr. MAZUR 1997 and 1999), the discovery of an undescribed Laotian platysomatine species that cannot be placed in any known genus because of its unique characters - among them a striking sexual dimorphism - may be regarded as surprising.

In the present paper, male and female of this new species are described and figured, and to receive it a new genus is proposed. We also briefly examine its relationships with *Silinus*, the most similar platysomatine genus.

Megagnathos **n. gen.**

D i a g n o s i s . Body long, exceeding 10 mm, elongate oval (Fig. 6), slightly convex, black and shining.

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Head front feebly convex, with frontal stria laterally and anteriorly well impressed, but interrupted on mandible base and antenna base; labrum small and transverse, anterior margin straight or feebly emarginate (Figs. 1, 4).

Mandibles (Figs. 1-5) long, not shorter than the length of head, tip bifid, showing distinct sexual dimorphism: strongly curved inwards and upwards in male, but less so in female.

Antennal club with typical platysomatine sutures ventrally "V" shaped.

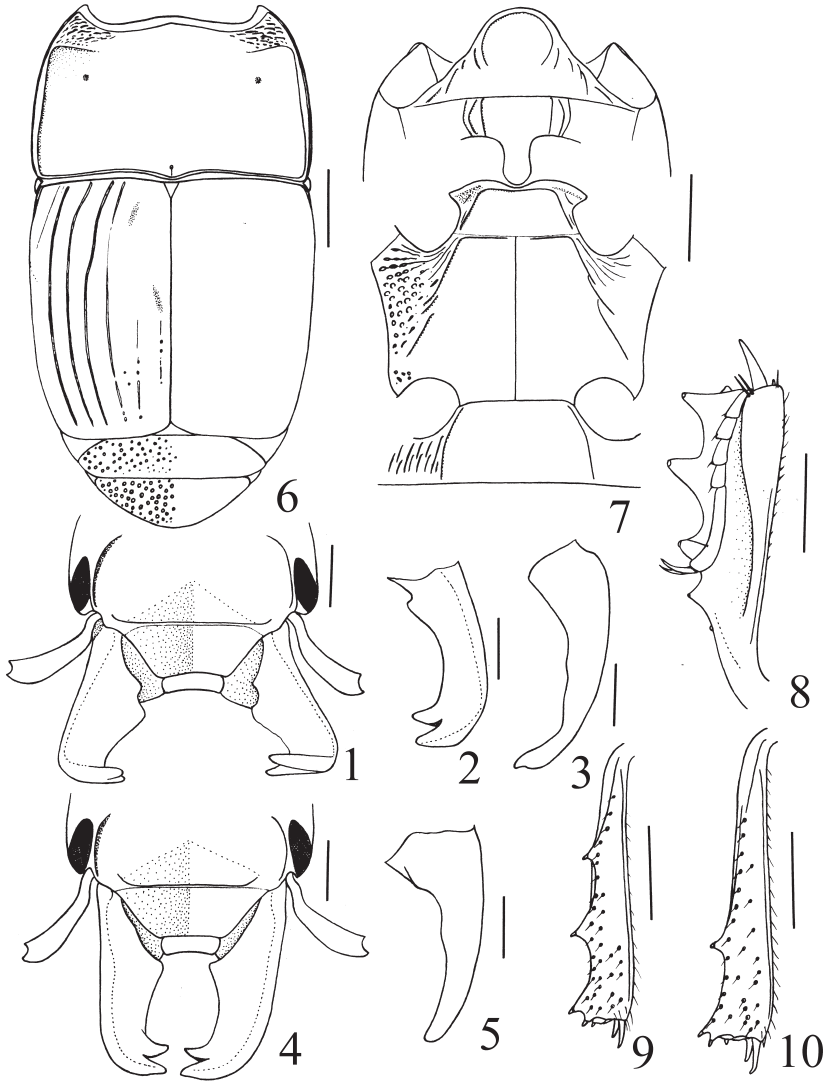
Pronotum (Fig. 6) with sides nearly parallel, but clearly convergent anteriorly; anterior margin deeply emarginate, and evidently arcuated outwards in medial part; marginal pronotal stria complete along all the margins; lateral pronotal stria deeply impressed, strongly bent mesad in anterior 1/4 and widely interrupted behind head, at posterior end connected with posterior part of marginal stria; area between anterior part of lateral stria and anterior angle distinctly elevated and rather rough; a deeply impressed fovea present on pronotal disc, posterad mesal end of lateral stria on each side.

Elytra (Fig. 6) with sides nearly parallel; 1st to 3rd dorsal striae complete and smooth; 4th dorsal stria nearly complete, only slightly interrupted or feebly and finely impressed at the base; 5th dorsal stria present apically but not reaching the middle of elytra, smooth or intermittent; sutural stria intermittently impressed on apical half; Epipleura flat with marginal epipleural and marginal elytral striae distinct and complete, with another short stria between them at the base.

Propygidium and pygidium nearly flat, covered with round and coarse punctures that are denser and larger on pygidium (Fig. 6).

Prosternal lobe (Fig. 7) rounded, nearly flat; marginal stria well impressed in anterior 2/3, its posterior end curved inwards; laterad of marginal stria, several short and oblique striae present. Prosternal keel narrow, without carinal striae; lateral prosternal and lateral marginal prosternal striae well impressed, with a supplementary longitudinal stria between them.

Mesosternum (Fig. 7) nearly flat, with anterior margin deeply emarginate medially; marginal mesosternal stria complete along anterior and lateral margins: well impressed laterally, its posterior end close to but not reaching meso-metasternal suture; finely impressed



Figs. 1-10 - *Megagnathos terrificus* n. gen., n. sp. Fig. 1: male head, frontal view. Fig. 2: male left mandible, dorsal view. Fig. 3: ditto, lateral view. Fig. 4: female head, frontal view. Fig. 5: female left mandible, lateral view. Fig. 6: holotype dorsal habitus. Fig. 7: holotype ventral habitus. Fig. 8: male protibia, dorsal view. Fig. 9: male mesotibia, dorsal view. Fig. 10: male metatibia, dorsal view. Scale bars: Figs. 1-5 and 8-10 = 1 mm; Figs. 6-7 = 2 mm (Y.-J. Zhang del.).

along anterior margin. Meso-metasternal suture finely and shallowly impressed, indistinct.

Intercoxal disk of metasternum (Fig. 7) slightly convex, with longitudinal suture well impressed, and lateral stria visible in 3 or 4 subsequent "fragments", ending a little before postero-lateral angle; post mesocoxal stria absent.

Mesocoxae with longitudinal carina.

Protibia (Fig. 8) slender, feebly dilated, outer margin with 4 large teeth. Mesotibia (Fig. 9) slender, outer margin with 3-4 acute denticles (apical two close with each other). Metatibia (Fig. 10) slender, outer margin with 3 acute denticles (apical two close with each other) in apical half.

Male genitalia. Aedeagus well sclerotized, slender and parallel-sided (Figs. 11-13); basal piece enlarged at the base forming a ring, and deeply incised anteriorly to receive the base of parameres; parameres longer 1.6 than the basal piece, convergent in the apical 1/6, with rounded apex, on ventral side fused only in the basal 2/6. 9th sternite (spicule) thin and long (Figs. 17-18). Remaining male genital segment similar to those of several platysomatine species.

Female genitalia not studied.

Differential diagnosis. *Megagnathos* indisputably belongs to Platysomatini because possesses a body slightly convex and subparallel, antennal clubs with V-shaped sutures, protibiae with S-shaped tarsal groove, and lateral metasternal striae not curved outwardly, all characters defining the tribe by MAZUR & ÔHARA (2009: 237). Moreover, the presence of a longitudinal carina on mesocoxae places it in the "*Platysoma* section" sensu MAZUR & ÔHARA (2009), where it seems to be closer to *Silinus* Lewis, 1907 than to any other genus/subgenus, since it has the base of the pronotum wholly margined by an evident stria (cfr. LEWIS 1907, BICKHARDT 1917, KRYZHANOVSKIJ 1972, MAZUR & ÔHARA 2009).

In particular, it resembles *Silinus mirabilis* (Lewis, 1900) and *S. procerus* (Lewis, 1911) (senior synonym of *S. reichardti* Kryzhanovskij, 1972 as stated by MAZUR & ZHOU 2001) in large body size, in slender and feebly dilated protibiae, in number and position of the acute denticles on the outer margins of meso- and metatibiae. The two deep discal foveae on the pronotum appear analogous to the smaller ones reported by LEWIS (1898: 160-161) for *S. pinnige-*

rus (Lewis, 1898) and hardly visible also in specimens of *S. procerus* (ZHANG pers. obs.), but not recorded for any other platysomatine species far as we're aware. Finally, it must be highlighted that the aedeagus is very similar to that of *S. procerus* in general shape and basal piece/parameres ratio (cfr. Fig. 7c in KRYZHANOVSKIJ 1972, and ZHANG pers. obs.) (no comparison can be done with the other *Silinus* species because their male genitalia have never been figured).

On the other hand, *Megagnathos* differs from *Silinus* by several important characters, specifically:

- very long mandibles with bifid tip, lacking any tooth on the inner edge (cfr. MAZUR & ÔHARA 2009: 247);
- mandibles strongly curved inwards and upwards in male (this striking sexual dimorphism has never been reported for any other platysomatine species);
- lateral pronotal stria deeply impressed and broadly interrupted behind head;
- area between anterior part of lateral pronotal stria and anterior angle distinctly elevated and rather rough;
- deeply impressed fovea present on the disk of pronotum posterad of anteromesal end of lateral stria each side;
- several short and oblique striae present on the prosternal lobe laterad of marginal stria;
- supplementary longitudinal stria between lateral and marginal prosternal striae;
- lateral metasternal stria shattered in 3-4 "fragments".

To the light of the above mentioned characters, the recent key to the genera of Platysomatini given by MAZUR & ÔHARA (2009: 246-247) should be modified as follows to include *Megagnathos* n. gen.:

25. Pronotal base usually not margined (Fig. 72). Mandibles with one simple dent at inner margin, at most with striiform incision (Fig. 71). . . . . .*Platylister* Lewis, 1892
a) prosternum broadened, weakly narrowed at middle, its basal margin emarginate, mesosternum bisinuate (Fig. 75) . . . . . subgen. *Ricinodendrus* Mazur, 1999

b) pygidium more or less incised laterally, its margin ele vated (Fig. 74). . . . . subgen. *Platylister* s. str.
c) pygidium flat or convex, without elevated margin . . . . . subgen. *Popinus* Mazur, 1999

- Pronotal base margined by a stria complete or briefly interrupted at middle. Mandibles never as above . . . . . 26.

26. Mandibles deeply canaliculated basally, with large, bifid dent at inner margin (Fig. 69) . . . . . *Silinus* Lewis, 1907

- Mandibles long, with bifid tip but no dent at inner margin, strongly curved inwards and upwards in male, but less so in female (sexual dimorphism). . . . . *Megagnathos* Penati & Zhang, 2009

Type of the genus. *M. terrificus* n. sp..

Derivatio nominis. *Megagnathos* is a compound name and masculine in gender. It comes from the old Greek adjective "μεγα" (= large), and noun "γναθος" (= mandible), to recognize the peculiar shape of the mandibles, the first character that made us consider it as a new genus.

***Megagnathos terrificus* n. sp.**

Figs. 1-18

Type material. Holotype ♂: "LAOS N, Oudomxay Province, La, 2-3.vi.2004, purchased from Li Jingke" / "MUSEO GENOVA coll. F. Penati (acquisto 2007)". Paratype: 1 ♀, same data as holotype. Both specimens are deposited in Penati collection at Museo Civico di Storia Naturale "Giacomo Doria", Genoa (MSNG).

Description. Male: body length from pronotal anterior angle to elytral apex 10.72 mm, body width at humeri 7.25 mm. Female: body length from pronotal anterior angle to elytral apex 11.30 mm; body width at humeri 7.68 mm. Body long, elongate oval, slightly convex, black and shining; tibiae, tarsi and antennae (except scape) fuscous, palpi of mouthparts brown. Body surface densely and evenly clothed with fine punctuation.

Head (Figs. 1, 4) frons with posterior area feebly convex, anteromedian area slightly impressed. Epistoma gradually impressed from laterally to medially. A feeble transverse stria present between frons and epistoma, nearly overlapping to anterior part of frontal stria. Frontal stria completely and deeply impressed, with lateral and anterior parts, but interrupted above mandible and antenna bases. Labrum small and transverse, anterior margin straight or feebly emarginate. Mandibles long, not shorter than length of head, tip bifid, showing distinct sexual dimorphism: strongly curved inwards and upwards in male (Figs. 1-3) but less so in female (Figs. 4-5). Antenna with scape slender, dilated apically.

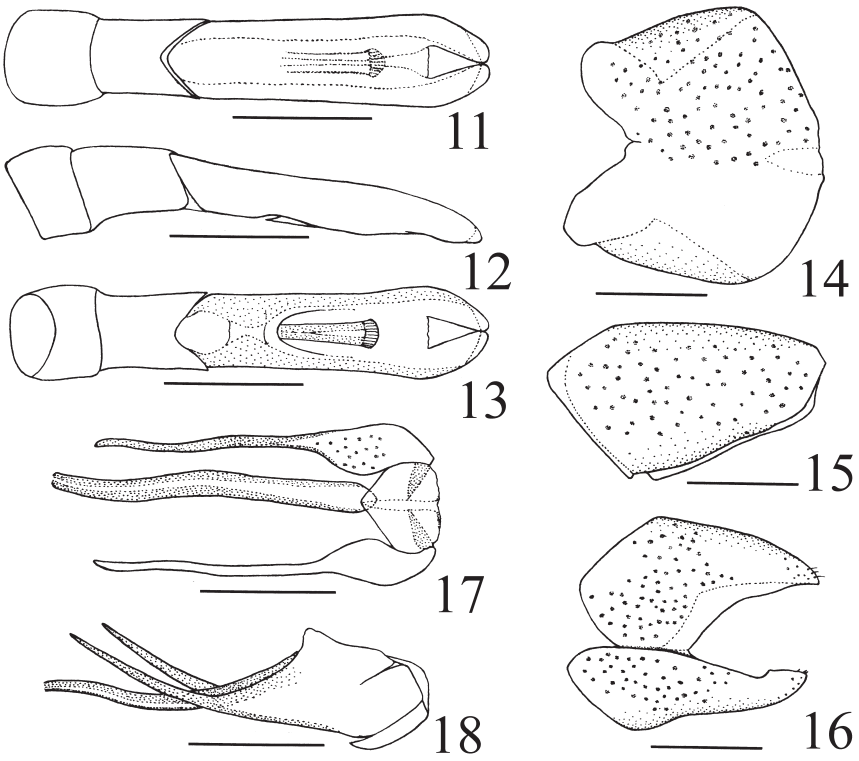
Pronotum (Fig. 6) with sides feebly arcuate medially and posteriorly, nearly parallel, but clearly convergent anteriorly; anterior angles depressed and rounded; anterior margin deeply emarginate, and evidently arcuated outwards in medial part; posterior margin nearly straight laterally but medially protruding backwards. Marginal pronotal stria complete along all the margins; its anterior part distant from and parallel with anterior margin, forming an inconspicuous angle in middle; its lateral part close to lateral margin and connected with anterior part; its posterior part close to and parallel with posterior margin but not connected with lateral part. Lateral pronotal stria elevated laterally, impressed along its inner edge, its anterior part strongly bent inwards in anterior 1/4, terminated in the area behind eye, frontal disc behind stria deeply impressed; lateral stria with its posterior end connected with posterior part of marginal pronotal stria. Area between anterior part of lateral pronotal stria and anterior angle distinctly elevated and rather rough; a deeply impressed fovea present posterad mesal end of lateral pronotal stria each side; antescutellar area with a round puncture.

Scutellum (Fig. 6) small and triangular.

Elytra (Fig. 6) with sides feebly arcuate, nearly parallel, apical part abruptly convergent posteriorly; humeral area relatively broad. 1st to 3rd dorsal striae complete and smooth; 4th dorsal stria nearly complete but anterior part usually interrupted or feebly and finely impressed; basal interspace between 2nd and 3rd dorsal striae broader, but narrower between base of 3rd and 4th dorsal striae; 5th dorsal stria present on apical area but not reaching the middle of elytra, smooth or intermittent, its apical end connected with 4th dorsal stria occasionally; sutural stria intermittently impressed behind middle;

oblique humeral stria finely impressed on basal 1/4; subhumeral stria absent. Epipleura flat; marginal epipleural stria and marginal elytral stria both distinct and complete, with a short stria between them and another fine stria externally to the marginal epipleural stria.

Propygidium (Fig. 6) nearly flat, feebly concave on posterior part of lateral area; surface irregularly and sparsely distributed with round and coarse punctures, narrow areas in middle and along anterior and posterior margins with small punctures.



Figs. 11-18 - *Megagnathos terrificus* n. gen., n. sp. Male genitalia. Fig. 11: aedeagus, dorsal view. Fig. 12: ditto, lateral view. Fig. 13: ditto, ventral view. Fig. 14: 8th tergite, dorsal view. Fig. 15: ditto, lateral view. Fig. 16: 8th sternite, ventral view. Fig. 17: 9th and 10th tergites and 9th sternite, dorsal view. Fig. 18: ditto, lateral view. Scale bars: 0.5 mm (Y.-J. Zhang del.).

Pygidium (Fig. 6) nearly flat, irregularly and densely covered with round and large punctures, larger than those on propygidium.

Prosternal lobe (Fig. 7) with anterior margin rounded, surface nearly flat; marginal stria well impressed with anterior 2/3, its posterior end curved inwards; outside marginal stria, several short and oblique striae present. Prosternal keel (Fig. 7) narrow, posterior margin rounded, surface flat on posterior area and longitudinally elevated on anterior area; carinal striae wanting. A distinct stria present between prosternal lobe and prosternal keel. Lateral prosternal stria and lateral marginal prosternal stria well impressed, with a supplementary stria between them.

Mesosternum (Fig. 7) with anterior margin deeply emarginated medially, surface nearly flat. Marginal mesosternal stria complete along anterior and lateral margins: well impressed laterally, its posterior end close to but not reaching mesometasternal suture; finely impressed along anterior margin. Several short striae present externally to the marginal stria. Mesometasternal suture finely and shallowly impressed, indistinct.

Intercoxal disk of metasternum (Fig. 7) slightly convex. Metasternal longitudinal suture well impressed. Lateral metasternal stria extending postero-laterally, and appearing as 3 or 4 subsequent fragments; its posterior end separated from posterolateral angle, anterior end extending along and nearly overlapping mesometasternal suture, terminated medially. Lateral disk without postmesocoxal stria, but with several unusual oblique striolae on area between lateral metasternal stria and posterior margin of mesocoxal cavity, with dense, shallow, large semicircular punctures laterally and posteriorly, interspace scattered with small and fine punctures.

Intercoxal disk of first abdominal ventrite (Fig. 7) nearly flat. Lateral abdominal stria complete, posterior end close to but not reaching posterior margin. Short longitudinal striae present externally to the lateral abdominal stria.

Mesocoxae with longitudinal carina.

Protibia (Fig. 8) slender, feebly dilated, outer margin with 4 large teeth. Mesotibia (Fig. 9) slender, outer margin with 3-4 acute denticles (apical two close with each other). Metatibia (Fig. 10) slender, outer margin with 3 acute denticles (apical two close with each other) in apical half.

Male genitalia. 8th tergite subrectangular in shape, wider than long (Figs. 14-15); 8th sternite divided longitudinally in two plates, with more or less rounded base and acute apex bearing a few very short hairs (Fig. 16); 9th tergite divided longitudinally, with a long projection at the base (anterolateral corner) and connected along the posterior margin with 10th tergite, the latter showing a V-shaped base; 9th sternite (spicule) thin and long, a little rounded at apex (Figs. 17-18). Aedeagus well sclerotized, slender and parallelsided (Figs. 11-13); basal piece enlarged at the base forming a ring, and deeply incised anteriorly to receive the base of parameres; parameres longer 1.6 than the basal piece, convergent in the apical 1/6, with rounded apex, on ventral side fused only in the basal 2/6.

Female genitalia not studied.

Derivatio nominis. Because of its "terrifying" (*terrificus* in Latin) aspect, due to the unusual large dimension and long curved mandibles.

Remarks. Though knowledge of histerid beetles' ecology is scarce and fragmented, it is likely that most are mainly egg and larval predators of insects, principally of Diptera and Coleoptera (see KOVARIK & CATERINO 2001). This is true also for Platysomatini, which belong to the morpho-ecological group "Dendrophiles" sensu KRYZHANOVSKIJ (1989) and YÉLAMOS (2002). In fact, almost all the members of the tribe prey on other insect larvae living under bark and in decaying vegetable matter (MAZUR & ÔHARA 2000), and are characterized by two different adaptive morphologies: body more or less flattened or body cylindrical. The "flattened" species are found mainly under bark and in tree phloem, whereas the cylindrical ones prevalently occur inside xylophagous beetle galleries, more rarely under bark. *Megagnathos terrificus* clearly belongs to the first group of species, so we can hypothesize that its habitat is under bark. Unfortunately, no information in this regard was registered at the time of capture.

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ABSTRACT

A new genus with a new species of the tribe Platysomatini are described, based upon a male and a female from Northern Laos (La, Oudomxay Province). Because of the peculiar shape of the mandibles, the new genus is named *Megagnathos*, coming from Greek and meaning "large mandible", while the species is named *terrificus*, for

its "terrifying" look due to its large size, and long and curved mandibles. In fact, this new taxon is one of the largest known among Platysomatini and it shows an unusual and peculiar sexual dimorphism regarding the mandibles, evidently bigger and more curved in male. *Megagnathos* n. gen. seems to be closer to *Silinus* Lewis, 1907 than to any other known genus/subgenus of the tribe. The key to the genera of Platysomatini recently given by MAZUR & ÔHARA (2009) is modified to include the new genus.

RIASSUNTO

Megagnathos terrificus, nuovo genere e nuova specie di platisomatino del Laos (Coleoptera, Histeridae, Histerinae).

Lo studio di una coppia (maschio e femmina) di Histeridae provenienti dal Laos settentrionale (La, Oudomxay Province), e conservati in collezione Penati ora al Museo Civico di Storia Naturale "Giacomo Doria" di Genova (MSNG), ha rivelato trattarsi di un genere ed una specie nuovi della tribù Platysomatini (subfam. Histerinae).

Considerato che tale tribù comprende attualmente 36 generi/sottogeneri, quattro dei quali dubitativamente (MAZUR & ÔHARA 2009), e 374 specie, la stragrande maggioranza delle quali è Indo-Malese o Australasiana (vedi MAZUR 1997 e 1999), la scoperta di una nuova specie del Laos, che non può essere ascritta a nessuno dei generi già noti per via dei suoi caratteri peculiari - tra cui un appariscente dimorfismo sessuale - può essere considerata sorprendente.

A causa della particolare forma delle mandibole, molto lunghe e ricurve verso l'alto, al nuovo genere è stato dato il nome *Megagnathos* (dal greco: "grande mandibola"), mentre la specie è stata battezzata *terrificus* per via del suo aspetto "terrificante", dovuto alle grandi dimensioni del corpo (oltre 11 mm di lunghezza) ed alla forma delle mandibole, evidentemente più lunghe e ricurve nel maschio. Le notevoli dimensioni della nuova specie, eguagliando quelle di *Silinus mirabilis* (Lewis, 1900) e *Silinus procerus* (Lewis, 1911), sono da considerarsi abbastanza inusuali tra i Platysomatini, mentre nella tribù non si conoscono altre specie presentanti un dimorfismo sessuale così marcato ed appariscente.

Megagnathos appartiene senza alcun dubbio alla tribù Platysomatini poiché possiede un corpo leggermente convesso e di forma subparallela, clave antennali con suture a forma di "V", protibie con solco tarsale a forma di "S" e strie laterali del mesosterno non curvate verso l'esterno, tutti caratteri che secondo MAZUR & ÔHARA (2000: 237) definiscono la tribù. Inoltre, la presenza di una carena longitudinale sulle mesocoxae lo pone nella "*Platysoma* section" sensu MAZUR & ÔHARA (2009), dove risulta essere più vicino a *Silinus* Lewis, 1907 che a qualsiasi altro genere/sottogenere, avendo la base del pronoto completamente bordata da una stria evidente (vedi punto 25 della chiave ai generi di Platysomatini elaborata da MAZUR & ÔHARA 2009).

D'altro canto, *Megagnathos* si differenzia per numerosi ed evidenti caratteri e precisamente: mandibole molto lunghe con apice bifido, senza alcun dente lungo il margine interno, e fortemente ricurve verso l'alto e l'interno nei maschi, meno nelle femmine (dimorfismo sessuale); stria laterale del pronoto molto profonda ed ampiamente interrotta dietro il capo; area compresa tra la porzione anteriore della stria laterale e l'angolo anteriore del pronoto nettamente rilevata e coperta di striole; presenza di due profonde fossette sul disco del pronoto, in posizione laterale; presenza di numerose striole oblique sul lobo prosternale esternamente alla stria marginale; presenza di una stria longitudinale supplementare tra la stria laterale e quella laterale marginale del prosterno; stria laterale del mesosterno "spezzata" in 3-4 frammenti.